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REPORT ON OPERATIONAL RESEARCH

AN ANALYSIS OF HOSPITAL EFFICIENCY IN PROVIDING HEALTH CARE SERVICES IN TAJIKISTAN:

THE CURRENT SITUATION

April 2012

This trip report was produced for review by the United States Agency for International Development. It was prepared by the Quality Health Care Project in the Central Asian Republics.

The USAID Quality Health Care Project is a five-year program designed to improve the health of Central Asians by strengthening health care systems and services, particularly in the areas of HIV/AIDS and TB care and prevention. The project assists governments and communities to more effectively meet the needs of vulnerable populations, with the aim of increasing utilization of health services and improving health outcomes. The Quality Health Care Project is part of USAID's third objective of investing in people as part of the US Strategic Framework for Foreign Assistance.

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Finally, the authors would like to extend special thanks to the oblast health departments of the Khatlon and Sogd Oblasts for their support in the implementation of this research, as well as to the oblast, central rayon and rural hospitals that took part in this study.

Summary

Overview

This paper analyzes baseline data collected in two Tajik oblasts prior to the introduction of extensive funding reforms by the Tajik government. The paper begins with an overview of the current health financing situation in Tajikistan, followed by findings related to sources of funding, allocation of funding, and efficiency indicators. The paper concludes with a set of recommendations for further health care finance reform.

Background

At the end of the Soviet era planned economy, Tajikistan was left with a highly centralized, hierarchical health care system incapable of effectively providing universal access to health care. As the country rebuilds, the Tajik government is working to improve its health care system by transitioning to new financing, management, and health care delivery systems. In the area of health care financing, the government seeks to more rationally use and efficiently distribute limited health care resources, through the collection of additional funds, pooling of funds, and the introduction of new mechanisms of resource distribution, including the Basic Benefits Package.

The Tajik Ministry of Health recently piloted per capita funding of primary care and the Basic Benefits Package in some hospitals, and has expressed an interest in broadening the scope of these reforms. The government also plans to introduce a case-based payment system at the hospital level. With these major policy changes set to be implemented in the next few years, the country's in-patient health care facilities will likely experience significant changes to both their financial systems, and to their operational efficiency. This paper provides an overview of baseline data, which was collected in 2011 prior to the spread of these reforms. The data collected will be used in future years to evaluate the impact of these policies.

Purpose of Research

The goal of this research project was threefold: (1) to identify the mechanisms through which Tajik hospitals receive funding; (2) to identify how funding is allocated at the hospital level and; (3) to collect data related to hospital performance in order to evaluate how new funding mechanisms impact hospital efficiency. Data was collected from the Tajik oblasts of Sogd and Khatlon, due to the distinctive funding situations of each. In Sogd, the government plans to implement a case-based payment system and to move financial control of hospitals to a newly established Oblast Health Administration. The Khatlon Oblast serves as a control, as the majority of rayons within it have not implemented past funding reforms.

Findings Related to Financial Operations

Sources of Funding: It was found that funding from the state budget is the single largest source of support for all types of hospitals in Tajikistan. However, due to insufficiency of state government funding in some rayons, mechanisms have been implemented that require patients to pay for health care services. The Basic Benefits Package provides hospitals with an additional source of funding in the form of co-payments from patients. However, the share of funds received in the form of paid services and co-payments from patients is not more that 15% of total funding.

Allocations: Wages make up the largest expenditure in all types of hospitals in Tajikistan. The second largest expenditure is for "goods and services," which includes spending for food and medication. However, hospitals do not have sufficient funds to adequately cover these expenses and as a result, patients frequently must purchase their own food and/or medication.

Findings Related to Hospital Efficiency

Hospital Performance: This study looked at bed turnover and occupancy, as well as doctor and nurse workload to analyse hospital performance. It was found that beds were underutilized throughout the country, with the average bed unoccupied for more than half of the year in the majority of hospitals studied. The case load of both doctors and nurses was found to be uneven across the country, with certain hospitals requiring their medical staff to service a very large number of cases, and others being underutilized.

Infrastructure: The directors of all of the facilities included in this study indicated that their hospitals had inadequate medical equipment. The condition of hospital facilities was also found to be quite poor, as is the provision of utilities such as water and electricity.

Human Resources: Tajikistan is currently experiencing a shortage of qualified health care workers, a situation that most adversely impacts rural areas. Qualified medical care workers tend to migrate to urban settings, or to leave the country in search of better pay. The medical universities in Tajikistan are not graduating the correct number and type of providers to meet the needs of the country's hospitals.

The Opinions of Health Facility Directors about the New Financing Mechanisms

As part of this study, 14 directors and deputy directors from hospitals in the Sogd and Khatlon Oblasts were surveyed about their opinions of the government's new financing policies. While the majority of feedback about the health care reforms was positive, interviewees also demonstrated a limited understanding of the new policies.

Recommendations

Based upon the information gathered through this research, the authors propose the following for implementation in the Republic of Tajikistan:

I. Case-based payment principles should be implemented to enable hospitals to more efficiently provide health care.

II. Training on the new payment mechanisms should be provided to facility directors and financial specialists.

III. To achieve financial stability, hospitals throughout Tajikistan should implement the Basic Benefits Package, and the government should ensure complete and stable funding for these programs.

IV. To increase the efficiency of hospital performance and health care delivery, clinical protocols should be developed and implemented.

V. Analysis of the performance of Rayon Number Hospitals indicated that their efficacy was so low as to warrant their closure. In order to maintain access to health care for the rural population, part of the funds released due to the closure of these hospitals should be reallocated for primary health care strengthening. Specifically, facilities with daytime hospitals could be established at the primary health care level.

VI. A range of activities should be developed to provide sufficient health care personnel throughout the country, as well as continuous medical education for health care providers.

VII. Hospital restructuring should be implemented simultaneously with the new funding mechanisms. This restructuring should focus particularly on the reduction of the number of facilities and the number of beds.

1. Introduction

With the end of the Soviet era planned economy, Tajikistan was left with a health system incapable of effectively providing universal access to health care. The country's loss of financial support from the USSR, combined with a five year civil war, led to a collapse of the country's health care funding. As the country rebuilds, the Tajik government is working to improve its health care system by transitioning to new financing, management, and health care delivery systems.

These changes will move the country away from a health care structure that has continued to model the Soviet system of health care. The country's health care administration has remained highly centralized, with a hierarchical management structure that parallels that of the government, with the following main levels of administration: national, through the Ministry of Health (MOH); oblast; and rayon. Funding has traditionally been allocated from the Ministry of Finance and moved down the hierarchy from the national level to the oblast level, and finally to the rayon level. Funding levels were based on the number of beds in each facility, rather than on cases treated. This research concerns hospitals within each level of the hierarchy: Oblast Hospitals (OH); Central Rayon Hospitals (CRH); and Rayon Number Hospitals (RNH).

The government of Tajikistan began instituting major reforms to the health care system in 2007 by piloting the Basic Benefits Package (BBP), which stipulates the rights of Tajik citizens to receive health care services through a set of procedures for making co-payments, and for the receipt of benefits for specific ailments for certain segments of the population.

The piloting of BBP was followed in 2008 by Governmental Decree #600, "*On the Procedure for Provision of Health Care Services for the Citizens of the Republic of Tajikistan within the System of State Health Facilities,*" which differentiates the types of health care services which ought to be provided in state hospitals free of charge and which ones require payment. Decree #600 has been piloted in rayons where BBP was not piloted.

In 2010, the Government of Tajikistan approved the "National Strategy for the Protection of the Health of the Population for 2010-2020," which serves as the basis for the development of strategic policies defining a new organization of the country's hospital hierarchy. This strategy also stipulates the kinds of services that will be provided to Tajik citizens. The Strategy defines the following priorities: capacity building for health care sector administration; improvement of health care quality and access; increased financial resources for the health care sector; improvement of the health care funding system; and improvement of the health care system's monitoring and evaluation mechanisms.

In the area of health care financing, which is the focus of this research, the Tajik government's main goal is to more rationally use and efficiently distribute limited health care resources. The "National Strategy for the Protection of the Health of the Population" provides for: (1) increased income for the health care system through the collection of additional funds; (2) pooling of funds; and (3) introduction of new mechanisms of resource distribution, including BBP.

Along with the aforementioned "National Strategy for the Protection of the Health of the Population for 2010-2020" approved in 2010, a "Strategic Plan for the Rationalization of Health Facilities in the Republic of Tajikistan for the Period of 2011-2020" was prepared by the Tajik government. The main objective of this plan is to restructure the health care system so that it better complies with international practices and standards. The plan calls for the creation of a system of fair and rational distribution of out-patient and in-patient health care services throughout the entire country, given an adequate differentiation between the primary, the secondary, and the tertiary levels of health care.

MOH has recently piloted per capita funding of primary care and BBP in hospitals, and has expressed interest in broadening the scope of these reforms.[1,2,3] The government is also planning to introduce a case-based payment system at the hospital level in order to facilitate a more rational distribution of resources.[4] MOH has created a working group for the planning of the implementation of this new system.

With these major policy changes set to be implemented in the next few years, the country's in-patient health care facilities will likely experience significant changes to both their financial systems, and to their operational efficiency. As will be described in section two of this paper, this research included the collection of baseline data, which will be used in future years to evaluate the impact of these policies.

[1] Per capita funding provides medical facilities with an annual allocation per patient served.
[2] Rahmon, Emomalii. "Speech of the President of the Republic of Tajikistan on the Universal Introduction of Per Capita Funding at the Primary Healthcare Level."
[3] Government of the Republic of Tajikistan *Governmental Decree #52 Regarding the Roll-out of BBP throughout the entire Sogd Oblast.* Tajikistan. December 2, 2010. NOTE: This Decree was in effect at the time that this research was conducted. However, the Decree has since been repealed.
[4] Through a case-based payment system the government sets reimbursement amounts for specific illnesses. Each time a case is treated by a medical facility, the facility is reimbursed the predetermined amount, regardless of the amount actually spent on treatment.

2. Purpose of Research

The goal of this research project was threefold: (1) to identify the main sources of funding for Tajik hospitals; (2) to identify how funding is allocated at the hospital level and; (3) to analyze data related to hospital performance in order to evaluate how these two funding mechanisms impact hospital efficiency in Tajikistan.

Data collected will be used as a baseline to track the impact of the introduction of new funding methods at the hospital level such as per capita funding of primary care, BBP, and case-based payment. Impacts will be tracked using indicators of successful health care service delivery such as bed turnover and human resource management. A planned follow-up study will yield practical recommendations for further improvements to the Tajik health care funding system, which will be shared with relevant Tajik policymakers.

3. Methodology

Within the framework of the present research, qualitative and quantitative approaches have been used. The following research tools were developed for use in this research:

1. Semi-structured questionnaires, which were used in interviews with the heads of health facilities or their deputies at 14 oblast, rayon, and rural in-patient facilities.[5] Each individual was interviewed in person for approximately one hour.

2. Matrices for the collection of financial and performance data from each facility for the past three years (2008-2010). The researchers sent the matrices to the 14 health facilities surveyed to be completed by hospital accountants before the interviewers came to the facility. During the interview period, the researchers verified the accuracy of the information entered.

The research tools were tested at two facilities to evaluate their efficacy in collecting the required information. The testing was conducted at the Vakhdatskiy Rayon CRH and at the RNH in the village of Gulrez, which is also in the Vakhdatskiy Rayon.

Within the framework of this research, a set of indicators was developed in order to determine how effective the in-patient facilities' activities are. These indicators were divided into the following categories: *financing*, *performance, infrastructure, and human resources*. These indicators include:

I. Financing:
- Sources of funding;
- Expenditures by line item;

II. Performance
- Bed occupancy: the average length of hospital stay, divided by the number of total hospital beds, multiplied by the number of days in a year;
- Workload: the average number of patients per doctor and per nurse;

III. Infrastructure Efficiency
- Number of beds: the ratio of beds to patients at each hospital, based upon the type of population that it serves;
- Availability of utilities: the reliability of basic utilities such as heating and water at each hospital facility;

IV. Human Resources
- Allocated positions: the number of positions MOH has allocated to each facility; these allocations are standardized for each type of hospital throughout the country;
- Physical entities: the number of actual staff members at each hospital;
- Sufficiency of staff: the number of individuals actually utilized to complete the duties associated with each hospital's allocated positions;
- Availability of human resources: the type and appropriateness of specialists on staff at each hospital;
- Average wages of doctors;
- Average wages of mid-level medical personnel; and
- Average wages of lower-level medical personnel.

[5] In Tajikistan, hospitals are managed by head doctors, who report to the relevant government administration.

Sampling

This study focused on two oblasts in Tajikistan: Sogd and Khatlon. These oblasts were chosen because of their distinctive funding situations. In the Sogd Oblast, the government plans to pilot a case-based payment system and to move control of funds for all hospitals in the oblast to a new financial entity established under the Oblast Health Administration.[6,7] The Khatlon Oblast was chosen as a control oblast because a large number of rayons within it have not implemented the funding reforms associated with Governmental Decree #600 and BBP.[8]

Data was collected from seven hospitals within each oblast. In order to ensure a complete picture of health facility performance in Tajikistan, each oblast's sample group included a variety of types of hospitals, and therefore a variety of funding and hospitalization levels. Each oblast sample included: one OH; three CRHs; and three RNHs.

Additional selection criteria included: only facilities more than ten kilometers away from a CRH were selected; and at RNHs, only facilities that serve populations three times smaller than their corresponding CRH were selected.

Figure 1 presents the names of the facilities that were included in the sampling.

[6] At the time of this study the government planned to implement this pilot in 2012. However, Decree # 536, dated on 11.02. 2011, set a new deadline for preparatory work for the introduction of the new mechanisms and for the piloting of pooling of funds in the Sogd Oblast. The new deadline is in 2013.

[7] Five of the seven sampled hospitals in the Sogd Oblast had implemented Governmental Decree #600 at the time of the survey. Only the CRH and RNH of the Spitamen Rayon had not. Two of the seven sample hospitals in the Sogd Oblast had implemented BBP at the time of the survey, with the Spitamen Rayon CRH and RNH again the exceptions. None of the other aforementioned financing reforms had been implemented in the Sogd Oblast sample group at the time of this survey.

[8] Only one of the surveyed hospitals (Khatlon OH) in the Khatlon Oblast had implemented Governmental Decree #600 at the time of this survey. None of the other aforementioned financing reform measures had been implemented in the Khatlon sample group at the time of survey.

Figure 1. Hospitals included in Survey

Oblast	Name of Facility
Sogd	Oblast Hospital Central Rayon Hospital of Spitamen Rayon Rayon Number Hospital of Spitamen Rayon Central Rayon Hospital of Zafarobod Rayon Rayon Number Hospital of Zafarobod Rayon Central Rayon Hospital of Gonchi Rayon Rayon Number Hospital of Gonchi Rayon
Khatlon	Oblast Hospital Central Rayon Hospital of A.Rumi Rayon Rayon Number Hospital #1 of A.Rumi Rayon Central Rayon Hospital of Bokhtar Rayon Rayon Number Hospital of Bokhtar Rayon Central Rayon Hospital of Shahrituz Rayon Rayon Number Hospital #1 of Shahritu Rayon, Shahrituz

4. Review of Health Care System Financing

Following the collapse of the Soviet Union, the Tajik health care system continued to utilize funding mechanisms inherited from the Soviet period. Under this highly centralized system payments flow to facilities based on inputs and staffing, rather than on quality and outputs. The Ministry of Finance determines and allocates the health care budget, and managers of health facilities have little financial discretion because their budgets are tied to line items.[9]

The collapse of the Soviet Union, and the resulting five year civil war, left the Tajik government with limited financial resources, and as a result the country has experienced difficulties in financing its state health care system. Under these conditions, the majority of health care services are financed through cash payments by individual households. In 2008, state health care expenditures amounted to 1.4% of GDP, whereas private sector expenditures for health care constituted 3.6% of GDP. State health care funding in Tajikistan covered only 27.7% of total health care expenditures in 2008, whereas private funding for health care covered 77.9% of total health care expenditures in 2007 and 72.3% in 2008.[10]

Reduced government outlays have resulted in decreased demand for health care. The poorer part of the population is unable to afford sufficient medical services, while the most destitute cannot afford even the most basic health care. The need for individual households to finance their own health care raises equity issues within Tajik society, and could even threaten social stability.

A secondary problem with individual household financing of health care services is that in many rayons, no formal payment system currently exists, creating issues of transparency.

To alleviate these pressures on the health care system, the Tajik government has begun introducing health care financing reform measures. The most prominent reforms include BBP, introduced in 2007, and Governmental Decree #600, introduced in 2008.

Co-payment is made by the patients within the framework of BBP. It stipulates the rights of Tajik citizens to receive health care services through a set of procedures for making co-payments, and for the receipt of benefits for specific ailments for certain segments of the population. Since BBP was introduced into Tajikistan's health care system through the adoption of Governmental Decree #199 on April 14, 2007, there have been annual updates to it. The most recent update was approved through Decree #52, which is valid for the years 2011-2012[11].

BBP provides for medical treatments, such as those described below.

- Urgent medical care, including basic medication necessary during the rendering of such assistance, is provided free of charge to the entire population.
- Primary health care, excluding certain laboratory and diagnostic testing, is provided free of charge to the entire population.
- Specialized out-patient care is provided, subject to official co-payment. Treatment plans after diagnosis and certain laboratory and diagnostic tests are excluded.
- In-patient treatment is provided, subject to official co-payment.

[9] " Khodjamurodov G, Rechel B. Tajikistan: Health system review. Health Systems in Transition, 2010, 12(2): 64.
[10] National Health Accounts Report: "Technical Assistance in Development and Institutionalization of NHA in the Republic of Tajikistan," 2009.
[11] At the time of this study, this decree was in effect. However, it has since been replaced by Decree #579 dated on 12.03.2011. Decree #579 cancelled the expansion and introduction of BBP in the Sogd Oblast. It also stated that the piloting of BBP should continue.

- Medication prescribed on an out-patient basis by a physician, pediatrician, or gynecologist for eight types of sicknesses is provided free of charge.

According to established procedures, funds received from payment for services and for co-payments may not be used for business trips or construction operations. These funds may be used only for the purposes of:

- Purchasing of:
  - medication;
  - medical supplies;
  - reagents;
  - disposable materials for laboratory research and diagnostic tests;
  - non-medical supplies and equipment;
  - spare parts for medical equipment; and
  - disinfectants and detergents;

- Costs for bank account fees, purchase of paper registry logbooks and other paper-based reporting materials; and

- Payment of wages to health care workers, including social security payments. A maximum of 40% of the collected funds may be used for wage payments.

Free health care services are provided to the population through the Government of the Republic of Tajikistan's Governmental Decree #600, "*On the Procedure for Provision of Health Care Services for the Citizens of the Republic of Tajikistan within the System of State Health Facilities,*" which was adopted on December 2, 2008. This Order differentiates the types of health care services which ought to be provided in state hospitals free of charge and which ones require payment. The free health services include:

- Medical emergency assistance;
- Primary health care;
- Specialized health care in policlinics;
- Provision of medication, vaccinations, and laboratory tests;
- Medical assistance in hospitals;
- Dental health care; and
- Activities undertaken by the government body "The State Surveillance Center for Sanitary and Epidemiological Services.[12]

The Tajik health care system also receives funding from outside sources, such as international aid organizations. Funding from outside sources constituted 7.4% of total health care expenditures in 2007 and 9.3% in 2008. This funding was distributed through state structures, as well as through private facilities. In 2008, outside funding made up 12% of state expenditures and 6% of spending by private medical facilities. In 2008, the share of external funding of state medical expenditures increased by 21%, while the share of external funding decreased by 5% as a share of private expenditures.[13]

[12] The sanitary–epidemiological services are responsible for prevention, monitoring and control of infectious diseases, occupational health, food safety, and environmental health.

[13] *Финальный отчет—Техническая помощь в развитии и институционализации счетов Национального Здравоохранения в Республике Таджикистан*

5. Findings

In this section, three aspects of the Tajik in-patient health care system are examined in order to evaluate the efficiency of Tajik health facilities prior to the expansion and introduction of the new financing mechanisms identified in the "National Strategy for the Protection of the Health of the Population for 2010-2020." First, the mechanisms through which Tajik hospitals receive funding are described. Next, hospital-level funding allocation decisions are examined. Finally, a series of indicators related to performance are utilized to analyze hospital efficiency.

5.1 Financing

In looking at the financial situation of Tajik hospitals, the researchers examined financial records from 2008 to 2010. Percentages of allocations described in the following sections are based on the following overall health care budgets, provided by the National Health Accounts: in 2008 the national health care budget was 4,823.8 million somoni; in 2009 the national health care budget was 5,687.3 million somoni; and in 2010 the national health care budget was 6,712.6 million somoni.[14]

5.1.1 Sources of funding

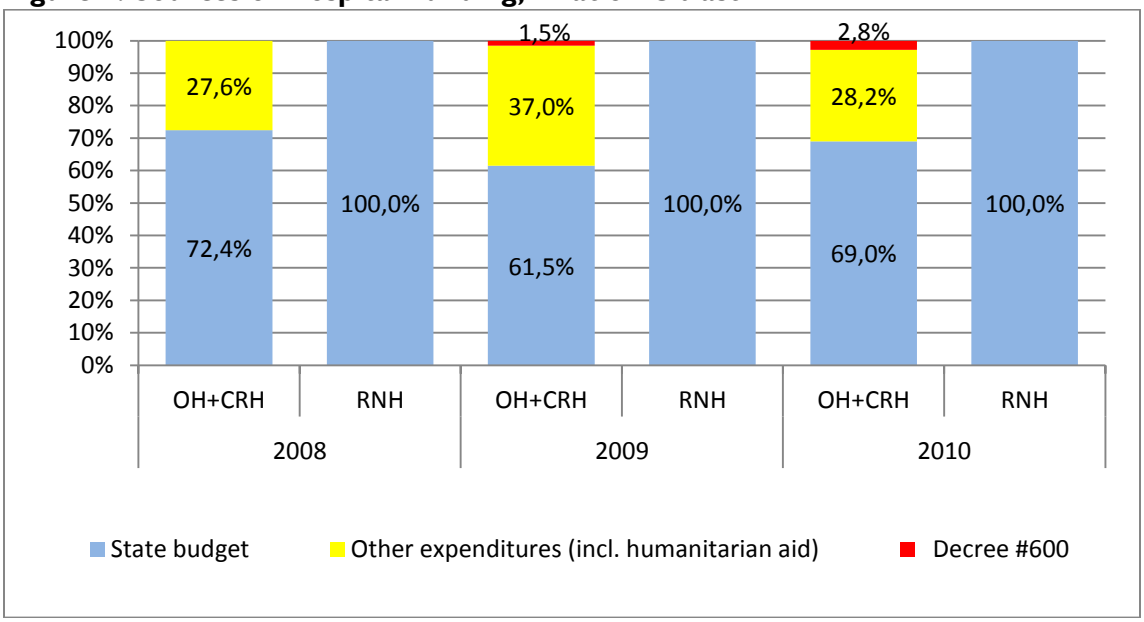
Information was gathered about the funding sources of hospitals within the Khatlon and Sogd Oblasts in order to understand the situation of these institutions prior to the introduction of health financing reforms.

Khatlon Oblast

According to the data received directly from CRHs and RNHs in the Khatlon Oblast, the state budget is the main source of funding for hospitals (Figure 2). Officials from RNHs in the Khatlon Oblast reported that the state budget is their only source of funding. Officials at the CRHs and OH that were part of the sample group indicated the presence of at least two sources of funding: the state budget and other sources (primarily funds from international organizations in the form of grants or humanitarian aid).

[14] The dollar to somoni exchange rate on November 1, 2011 was US$ 1.00 = 4.76 (WB source)

Figure 2: Sources of Hospital Funding, Khatlon Oblast



The ratio of state funds to other funding sources in 2008-2010 did not vary significantly, with no major changes having taken place during the period. The share of state funding fluctuated between 61%-72%, whereas other funding sources fluctuated between 28% to 37% of total funding received. However, despite no significant fluctuations, the share of state funding did decrease overall from 2008 to 2010.

At the beginning of 2009, the Khatlon OH began providing diagnostic services to the population on the basis of the aforementioned Governmental Decree #600. As a result, in 2009, the share of funds received through co-payments and for non-covered services, within the framework of the Decree, amounted to 1.5% of funding for the Khatlon OHs, CRHs, and RNHs. The following year, the share of funds received through co-payments and non-covered services increased to 2.8%. This additional funding received through Decree #600 may mean that more hospitals will be interested in implementing this program in the future.

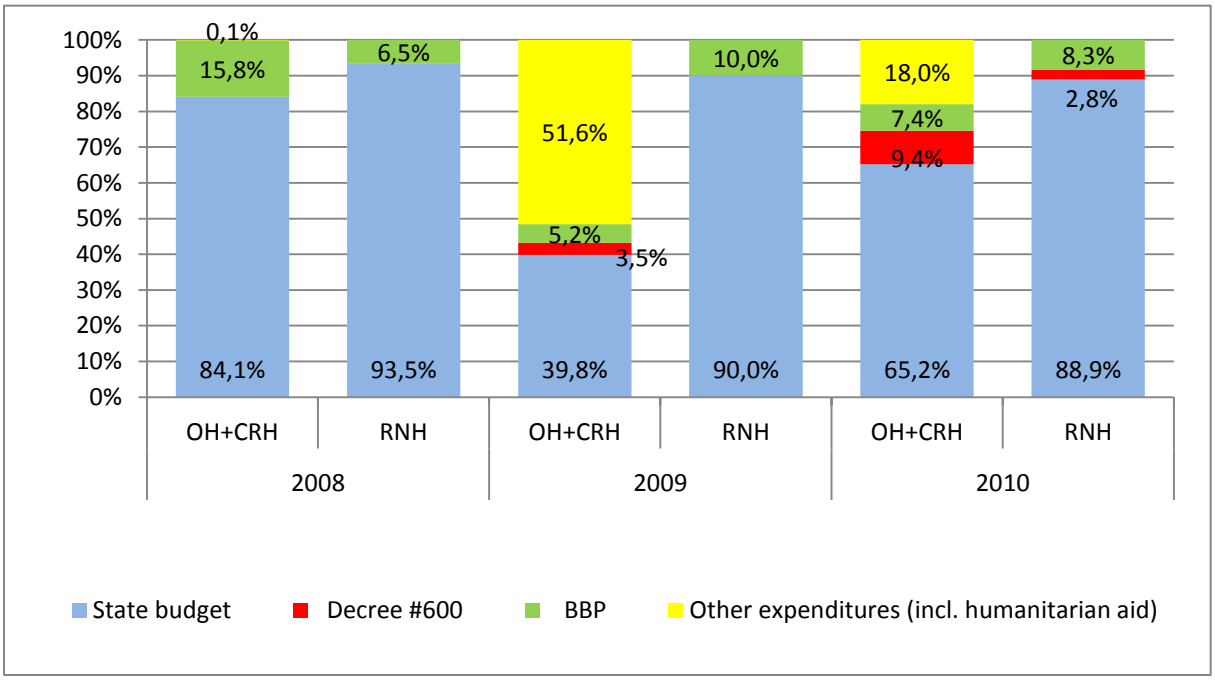
Sogd Oblast

The Sogd Oblast received funding from a greater variety of sources than the Khatlon Oblast during the period studied. Nevertheless, the state budget is still the primary funding source for hospitals in the Sogd Oblast, with state government funds making up over 80% of funds in 2008 -2010. Data from 2009 is skewed due to a donation of pharmaceuticals valued at over 6 million somoni, which were received by OH and CRH in the Spitamen and Gonchi Rayons. As result, in that year, the share of state funding decreased to 40% of overall income, while the share received from outside financing sources reached 52% of total funding. However, this type of aid is received only rarely. It is important to note that humanitarian aid was not directly allocated to RNHs in either the Sogd or Khatlon Oblasts; therefore, any amounts they received indirectly through allocations from higher level hospitals is not reflected in financial reports.

The Spitamen Rayon of the Sogd Oblast received additional funding in the form of co-payments from patients through BBP. As a result, the amount of funding received through patient co-payments ranged from 5%-16% of the total funding received in the Sogd Oblast. However, it is worth noting that co-payments to CRH in the Spitamen Rayon decreased from 38% of total funding in 2008 to 22% in 2010, and that co-payments to RNH #1 decreased from 50% to 31% of total funding. This decrease in funds

collected through co-payments is likely the result of patients seeking care in hospitals that have not yet launched the co-payment system.

Figure 3: Sources of Hospital Funding, Sogd Oblast



Note: Data from the Oblast Hospital for 2008 are missing.

5.1.2 Line Item Expenditures

After looking at sources of financing for Tajik in-patient facilities, the authors examined how these funds are spent at different types of hospitals within the Khatlon and Sogd Oblasts.

Khatlon Oblast

Oblast Hospitals and Central Rayon Hospitals, Khatlon Oblast

As was indicated earlier, the budget of OH and CRHs is made up of funds from the state budget, payment from the population for diagnostic services within the Governmental Decree #600 framework, and from external funds.

As the state budget provides the vast majority of funding for in-patient facilities in each oblast, the percentage of funding received from the national government that is allocated to each line item is examined first.

Funding from the state budget is spent for the most part on wages for hospital personnel. The share of state funding spent on the line item "wages" amounted to 63% in 2008 and had increased to 74% by 2010 (Figure 4). Such rapid growth in the share of overall expenditures is due to the fact that in 2009 and 2010 the average level of wages for high-level medical personnel increased significantly. While in 2008, the average wages of doctors in OH and CRHs in the Khatlon Oblast were 84 somoni per month; in 2010 the average wages in these hospitals had increased to 344 somoni per month. The growth of wages for mid-level and junior-level medical personnel was somewhat lower.

The second highest percentage of state government funds were allocated to "Expenses for Goods and Services." In 2008, 31.5% of funds received from the state government budget, were spent on this item, but by 2010 the share of state government funds spent on goods and services had decreased to 21%. This reduction in spending impacted the quality of health service provision, as evidenced by a significant reduction in the share of expenditures for medication, a sub-category under "Goods and Services." Outlays for medication decreased from 6% of the state government budget allocation in 2008 to 3.7% in 2010. As a result, hospitals have a reserve of medication only for the purpose of rendering urgent medical assistance. In all other cases, patients are forced to buy the medications and medical supplies necessary for their treatment.

A similar situation is found in the provision of food to patients, which is also a sub-category under "Goods and Services." The share of expenditures spent on food decreased from 11% in 2008 to 6% in 2010. As a result, CRHs were able to allocate only 20 to 50 diram per day per patient, while and at OH a little over one somoni was allocated per patient, per day. Allocated funds are barely sufficient to organize hot meals once a day.

The line item "Payment for Utilities" in Figure 4 primarily indicates outlays for electricity and water. The share of utility payments for electricity tended to increase, which is likely the result of rate increases. Expenditures for other types of utilities were insignificant.

On a positive note, funds were made available for capital expenditures. Despite the fact that from 2008 to 2010, no funds were allocated for the construction of new buildings or for capital repairs to existent facilities, equipment purchases constituted around 5% of the expenditure of funds received from the state government budget.

Some of the payments received from patients for diagnostic services within the parameters of Governmental Decree #600 were used to pay a portion of personnel costs and to finance repairs to existent facilities. In 2009 at the Khatlon OH these funds were used to purchase equipment. However, the majority of funds received through Decree #600 were spent on goods and services, with over one-third going towards medication, reagents, and other medical supplies.

Other sources of support, which mostly include humanitarian aid, were usually given in the form of medication.

Figure 4: OH and CRH Expenditures, by Line Item (%), Khatlon Oblast

	2008		2009			2010		
	State Government Budget	Other sources (inc. humanitarian aid)	State Government Budget	According to Governmental Decree #600	Other sources (inc. humanitarian aid)	State Government Budget	According to Governmental Decree #600	Other sources (inc. humanitarian aid)
TOTAL EXPENDITURES	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
1.Wages	63,0%		73,3%	24,8%	3,2%	74,3%	40,5%	
2. Overall goods and services	31,5%	99,8%	21,6%	59,1%	77,8%	20,8%	59,5%	99,7%
2.1. Purchase of goods, including:	22,8%	99,8%	13,9%	52,2%	76,4%	13,1%	54,5%	99,7%
2.1.6. Food items	10,7%		6,6%		1,2%	6,1%		
2.1.9. Medications	6,0%	99,8%	3,6%	35,2%	74,8%	3,7%	36,7%	99,7%
2.2. Utilities, including:	3,2%		2,8%		0,6%	3,7%	2,7%	
2.2.1. Electricity	1,3%		2,1%		0,3%	2,7%	2,7%	
2.2.2. Gas	0,2%				0,1%	0,1%		
2.2.3. Heating	0,4%		0,2%		0,1%	0,2%		
2.2.4. Garbage collection	0,2%		0,0%			0,2%		
2.2.5. Water	1,1%		0,5%		0,0%	0,6%		
2.3. Maintenance and repairs of buildings, facilities, transportation, equipment, etc.	5,2%		4,9%	6,9%	0,7%	3,8%	2,0%	
2.4. Payment for communication services	0,3%		0,0%		0,1%	0,1%	0,2%	
5. Purchase of basic capital	5,4%	0,2%	4,9%	16,1%	19,0%	4,9%		0,3%
5.1. Centralized capital investments								
5.2. Purchase of equipment	5,4%	0,2%	4,9%	16,1%	19,0%	4,9%		0,3%

In Figure 5, below, expenditures are analyzed by funding sources. Public funds are mostly allocated for maintenance of infrastructure and medical personnel. Funds from other sources are mainly allocated for such line items as "Goods and Services", and in particular for medication. However, international donors also provide a large portion of the supply of medication for the hospitals included in this study.

Figure 5: OH and CRH Expenditures by Line Item and Source (%), Khatlon Oblast

	2008			2009				2010			
	State Government Budget	Other sources (incl. Humanitarian aid)	**Total Expenditures**	State Government Budget	According to Governmental Decree #600	Other sources (incl. humanitarian aid)	**Total Expenditures**	State Government Budget	According to Governmental Decree #600	Other sources (incl. humanitarian aid)	**Total Expenditures**
TOTAL EXPENDITURES	**20,8%**	**79,2%**	**100%**	**52,0%**	**1,6%**	**46,3%**	**100%**	**66,3%**	**2,6%**	**31,1%**	**100%**
1.Wages	100,0%		**100%**	95,3%	1,0%	3,7%	**100%**	97,9%	2,1%		**100%**
2. Overall goods and services	7,7%	92,3%	**100%**	23,3%	2,0%	74,7%	**100%**	29,8%	3,3%	66,9%	**100%**
2.1. Purchase of goods, including:	5,7%	94,3%	**100%**	16,6%	2,0%	81,4%	**100%**	21,2%	3,4%	75,4%	**100%**
2.1.6. Food items	100,0%		**100%**	86,2%		13,8%	**100%**	100,0%			**100%**
2.1.9. Medications	1,6%	98,4%	**100%**	5,0%	1,5%	93,5%	**100%**	7,2%	2,8%	90,1%	**100%**
2.2. Utilities, including:	100,0%		**100%**	83,8%		16,2%	**100%**	97,2%	2,8%		**100%**
2.2.1. Electricity	100,0%		**100%**	88,5%		11,5%	**100%**	96,2%	3,8%		**100%**
2.2.2. Gas	100,0%		**100%**	0,0%		100,0%	**100%**	100,0%			**100%**
2.2.3. Heating	100,0%		**100%**	56,6%		43,4%	**100%**	100,0%			**100%**
2.2.4. Garbage collection	100,0%		**100%**	100,0%		0,0%	**100%**	100,0%			**100%**
2.2.5. Water	100,0%		**100%**	93,9%		6,1%	**100%**	100,0%			**100%**
2.3. Maintenance and repairs of buildings, facilities, transportation, equipment, etc.	100,0%		**100%**	86,0%	3,7%	10,3%	**100%**	98,0%	2,0%		**100%**
2.4. Payment for communication services	100,0%		**100%**	24,2%		75,8%	**100%**	95,1%	4,9%		**100%**
5. Purchase of basic capital	90,1%	9,9%	**100%**	22,1%	2,3%	75,7%	**100%**	97,1%		2,9%	**100%**
5.1. Centralized capital investments											
5.2. Purchase of equipment	90,1%	9,9%	**100%**	22,1%	2,3%	75,7%	**100%**	97,1%		2,9%	**100%**

Rayon Number Hospitals, Khatlon Oblast

The state government budget is the only source of funding for RNHs in the Khatlon Oblast. For the most part, the budget at RNHs is directed towards the payment of wages. The share of this expenditure item constitutes between 84% and 92% of national government funding (Figure 6).

The remaining funding from the state government budget is used for the purchase of goods and services, including food items, which constituted 3%-5% of overall expenditures between 2008-2010. Some RNHs had no allocation for food, which resulted in patients not being fed while in hospital care. The share of expenditures for medication decreased from 4.3% of the overall budget in 2008 to 2.5% in 2010. This low level of funding for medication means that while hospitals provide emergency medications, patients must purchase their own non-emergency medication and medical supplies, at their own expense.

Utility expenditures at the RNH level include only payments for electricity and heating. The low level of funding available leads to regular arrears of utility payments.

Figure 6: Expenditures, Rayon Number Hospitals, by Line Item (%), Khatlon Oblast

	2008	**2009**	**2010**
	State government budget	State government budget	State government budget
TOTAL EXPENDITURES	**100%**	**100%**	**100%**
1.Wages	84,2%	92,2%	88,9%
2. Overall goods and services	15,2%	7,4%	10,5%
2.1. Purchase of goods, including:	13,0%	6,3%	8,4%
2.1.6. Food items	4,9%	2,9%	4,3%
2.1.9. Medications	4,3%	2,3%	2,5%
2.2. Payment for utilities, including	0,9%	0,5%	1,2%
2.2.1. Electricity	0,5%	0,4%	1,0%
2.2.2. Gas			
2.2.3. Heating	0,4%	0,1%	0,2%
2.2.4. Garbage collection			
2.2.5. Water			
2.3. Maintenance and repairs of buildings, facilities, transportation, equipment, etc.	1,3%	0,7%	0,9%
2.4. Payment for communication services			
5. Purchase of basic capital	0,5%	0,4%	0,7%
5.1. Centralized capital investments			
5.2. Purchase of equipment	0,5%	0,4%	0,7%

Sogd Oblast

Oblast Hospitals and Central Rayon Hospitals, Sogd Oblast

As previously mentioned, the budget of OH and CRHs in the Sogd Oblast comes from state government funds, from direct payments from patients for diagnostic services, as prescribed by Governmental Decree #600, and from external funders. Both the CRH and the RNH in the Spitamen Rayon in the Sogd Oblast also receive funds from patient co-payments through BBP.

As in Khatlon, the Sogd Oblast receives the majority of its funding from the state government budget. These funds are spent, for the most part, on the maintenance of hospital personnel. The share of funding from the state government budget spent on "wages" in 2008 amounted to 75%, and by 2010 had increased to 79% (Figure 7). Hospital personnel in the Sogd Oblast also experienced wage increases from 2008-2010, though the growth was not as rapid as in the hospitals researched in the Khatlon Oblast. While in 2008, the average wages of doctors in OH and CRH in the Sogd Oblast were 68 somoni per month; by 2010 the average wages in these hospitals had increased to 213.5 somoni. The growth rate of wages for mid- and junior-level medical personnel was somewhat lower.

The second greatest allocation of state government funds in the Sogd Oblast was for goods and services. In 2008, 25% of the sum received from the state government budget allocation was used for goods and services. However, by 2010 the portion of the state government allocation used for goods and services had decreased to 20%. As in the Khatlon Oblast, the low level of funding for items in this category had a negative impact on the quality of health care service provision to the population. Thus, the allocation for medication ranged from 4% to 6% of the amount received from the state government budget between 2008-2010. As a result, hospitals are only able to provide medications for urgent medical assistance. In all other cases, patients are forced to buy their own medications and medical supplies. Exceptions are found only in the Spitamen Rayon hospitals, where BBP is in place, thanks to which patients are virtually fully provided with the necessary medications as a result of government funding for BBP services..

A similar situation is found in terms of provision of food to patients. The share of expenditures from the state government budget allocation spent for "Food Items" ranged between 3%-6% from 2008-2010. As a result, in most hospitals meals were either provided only once a day, provided only to the most needy patients, or purchased by patients themselves.

Expenditures on utilities decreased from 14% of the total funding from the state budget in 2009, to 9% in 2010. However, despite this reduction, the share of expenditures on utilities in the Sogd Oblast is significantly higher than the same indicator in the Khatlon Oblast. Moreover, the majority of utility related expenditures in the Sogd Oblast went towards the payment of electricity and water (7.7% in 2010). During the surveys conducted as part of this research, hospital directors in the Sogd Oblast pointed out that their hospitals experienced virtually no problems with the supply of electricity, but that in many hospitals there were problems with the supply of water.

In contrast to the Khatlon Oblast, in the Sogd Oblast, the state government budget included virtually no allocations for capital expenditures (less than 1% in 2008 and 2010), with the exception of the year 2009, when allocations for the purchase of equipment amounted to around 4% of the funds received from the state government budget.

Funds received from patients for diagnostic services as prescribed by Governmental Decree #600 constitute the second source of funds for in-patient facilities in the Sogd Oblast. These funds were partially used for wages, with 15% of total receipts from Decree #600 used for salary payments in 2009 and 32.6% in 2010. However, the majority of these funds were used for the purchase of goods and services, and for the payment of utilities. It is worth noting that despite the fact that Decree #600

dictates that funds collected through the decree be used only for expenditures connected to the provision of diagnostic services, it was found that some hospitals in both oblasts used these funds for general institutional needs.

Funds received at the Spitaman Rayon CRH and RNH as co-payments through BBP were primarily spent on two items—payment of wages and purchase of medications, with these two items making up no less than 90% of BBP fund expenditures.

Other sources of support within the Sogd Oblast include medication provided as humanitarian aid by international organizations.

Figure 7: OH and CRH Expenditures, by Line Item (%), Sogd Oblast

	2008			2009				2010			
	State Budget	BBP	Other sources (incl. humanitarian aid)	State Budget	According to Governmental Decree #600	BBP	Other sources (incl. humanitarian aid)	State Budget	According to Governmental Decree #600	BBP	Other sources (incl humanitarian aid)
TOTAL EXPENDITURES	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
1.Wages	75,3%	27,8%		60,4%	15,4%	54,4%		79,1%	32,6%	29,7%	
2. Overall goods and services	24,6%	72,2%	100%	35,6%	73,7%	45,6%	100%	20,3%	61,8%	70,3%	95,8%
2.1. Purchase of goods, including:	11,0%	72,2%	100%	16,5%	47,6%	39,9%	100%	10,0%	27,2%	67,1%	95,8%
2.1.6. Food items	3,4%			6,0%	13,1%	0,6%		2,9%	0,1%		
2.1.9. Medications	4,3%	69,4%	100%	6,0%	15,7%	37,1%	100%	4,6%	10,3%	65,8%	95,8%
2.2. Payment for utilities, to include:	11,8%			14,0%	12,9%	5,0%		9,0%	20,4%	3,2%	
2.2.1. Electricity	3,1%			6,4%	7,2%	0,7%		3,4%	13,1%	3,2%	
2.2.2. Gas	0,8%					1,2%					
2.2.3. Heating	3,6%			0,2%		0,9%		0,9%			
2.2.4. Garbage collection	0,4%			0,3%	0,4%	0,9%		0,4%	1,3%		
2.2.5. Water	3,9%			7,1%	5,3%	1,2%		4,3%	6,1%		
2.3. Maintenance and repairs of buildings, facilities, transportation, equipment, etc.	1,4%			4,7%	13,0%	0,5%		1,1%	14,0%		
2.4. Payment for communication	0,4%			0,4%	0,2%	0,3%		0,2%	0,1%		

services											
5. Purchase of basic capital	0,2%			4,0%	10,9%			0,5%	3,8%		4,2%
5.1. Centralized capital investments											
5.2. Purchase of equipment	0,2%			4,0%	10,9%			0,5%	3,8%		4,2%

Figure 8, below, analyzes expenditures by funding sources in the Sogd Oblast. The maintenance of infrastructure is covered by the state budget, as in the Khatlon Oblast. Funds for the payment of the wages of medical personnel in the Sogd Oblast are supplemented by co-payments within the framework of BBP. External funds in the form of humanitarian assistance provide for the purchasing of medicines in the Sogd Oblast.

Figure 8: OH and CRH Expenditures, by Line Item and Source of Funding (%), Sogd Oblast

	2008				2009					2010				
	State Budget	BBP	Other Sources (inc. Humanitarian aid)	**Total Expenditures**	State Budget	According to Governmental Decree №600	BBP	Other Sources (incl. Humanitarian aid)	**Total Expendtirues**	State Budget	According to Governmental Decree №600	BBP	Other sources (inc. humanitarian aid)	**Total Expenditures**
TOTAL EXPENDITURES	83,2%	16,6%	0,1%	**100%**	28,8%	2,7%	11,8%	56,7%	**100%**	63,9%	8,9%	7,8%	19,4%	**100%**
1.Wages	93,1%	6,9%	-	**100%**	71,8%	1,7%	26,5%	-	**100%**	90,6%	5,2%	4,2%	-	**100%**
2. Overall goods and services	62,7%	36,9%	0,5%	**100%**	13,8%	2,7%	7,3%	76,2%	**100%**	30,5%	12,9%	12,8%	43,7%	**100%**
2.1. Purchase of goods, including:	42,9%	56,4%	0,7%	**100%**	7,1%	1,9%	7,0%	84,0%	**100%**	19,6%	7,4%	16,0%	57,0%	**100%**
2.1.6. Food items	100,0%	-	-	**100%**	80,2%	16,3%	3,5%	-	**100%**	99,6%	0,4%	-	-	**100%**
2.1.9. Medications	23,2%	75,8%	1,0%	**100%**	2,7%	0,7%	6,9%	89,7%	**100%**	10,7%	3,3%	18,6%	67,4%	**100%**
2.2. Payment for utilities, to include:	100,0%	-	-	**100%**	81,3%	6,9%	11,8%	-	**100%**	73,6%	23,3%	3,1%	-	**100%**
2.2.1. Electricity	100,0%	-	-	**100%**	86,8%	9,1%	4,1%	-	**100%**	60,4%	32,7%	6,9%	-	**100%**
2.2.2. Gas	100,0%	-	-	**100%**	-	-	100,0%	-	**100%**					
2.2.3. Heating	100,0%	-	-	**100%**	34,1%	-	65,9%	-	**100%**	100,0%	-	-	-	**100%**
2.2.4. Garbage collection	100,0%	-	-	**100%**	44,6%	5,0%	50,4%	-	**100%**	66,2%	33,8%	-	-	**100%**
2.2.5. Water	100,0%	-	-	**100%**	87,9%	6,1%	5,9%	-	**100%**	83,7%	16,3%	-	-	**100%**
2.3. Maintenance and repairs of buildings, facilities, transportation, equipment, etc.	100,0%	-	-	**100%**	76,9%	20,0%	3,1%	-	**100%**	36,6%	63,4%	-	-	**100%**
2.4. Payment for communication services	100,0%	-	-	**100%**	76,2%	3,3%	20,5%	-	**100%**	96,1%	3,9%	-	-	**100%**
5. Purchase of basic capital	100,0%	-	-	**100%**	25,0%	25,0%	25,0%	25,0%	**100%**	25,0%	25,0%	25,0%	25,0%	**100%**
5.1. Centralized capital investments														

5.2 Purchase of Equipment	100,0%	-	-	**100%**	79,8%	20,2%	-	-	**100%**	22,3%	22,8%	-	55,0%	**100%**

Rayon Number Hospitals, Sogd Oblast

In contrast to RNHs in the Khatlon Oblast, RNHs in the Sogd Oblast receive funding from sources besides the state government budget. For example, in the Spitamen Rayon, BBP has been introduced; and in the Gonchi Rayon RNH the co-payment system from Decree #600 has been introduced. However, the state government budget remains the greatest source of funding for RNHs in the Sogd Oblast. Approximately 90% of the allocation received from the state government budget is spent on salaries at RNHs (Figure 9).

Figure 9: Rayon Number Hospital Expenditures, by Item (%), Sogd Oblast

	2008		2009		2010		
	State budget	Under BBP	State budget	Under BBP	State budget	Under Governmental Decree #600	under BBP
TOTAL EXPENDITURE	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
1.Wages	90,4%	22,8%	89,6%	33,7%	87,1%	29,8%	34,2%
2. Overall goods and services	9,6%	77,2%	10,4%	66,3%	12,9%	70,2%	65,8%
2.1. Purchase of goods including:	5,4%	77,2%	5,1%	66,3%	5,8%	46,5%	65,8%
2.1.6. Food items	2,9%		2,6%		0,5%		
2.1.9. Medications	0,8%	72,4%	1,3%	64,5%	4,7%	23,7%	63,6%
2.2. Payment for utilities, including:	4,1%		5,3%		7,0%	17,5%	
2.2.1. Electricity	4,0%		4,1%		5,6%	17,5%	
2.2.2. Gas							
2.2.3. Heating			1,1%		1,1%		
2.2.4. Garbage collection	0,1%		0,1%		0,3%		
2.2.5. Water							
2.3. Maintenance and repairs of buildings, facilities, transportation, equipment, etc.						6,1%	
2.4. Payment for communication services							
5. Purchase of basic capital							
5.1. Centralized capital investments							
5.2. Purchase of equipment							

The remaining funds allocated from the government are spent on goods and services, including food and medications. In 2008 the allocation for food constituted approximately 3% of the total amount received from the state government budget. In 2010 the allocation for food decreased to 0.5% of the total amount from the state government budget. As a result no meals were provided to patients whatsoever in that year. The share of spending on medications increased from 0.8% in 2008 to 4.7% in 2010, although the majority of RNHs had medications only for the purposes of rendering

emergency services. In other cases, patients were forced to buy medications and medical supplies at their own expense. Again, it is worth noting that at the Spitamen Rayon RNH patients were provided medications due to funding from BBP.

Expenditures on utilities, which made up between 4 and 7% of expenditures of state government funds, mostly consist of payments for electricity, as in the majority of RNHs heat is provided by means of electrical heaters (Figure 10).

During the period during which this research was conducted, there was not a single source of funding for capital expenditures in RNHs in the Sogd Oblast.

About one-third of funds collected through Governmental Decree #600 were used to pay wages, with the remaining percentage of the funds used to purchase medication.

As seen in Figure 10, below, the situation with expenditures by source of funding in RNHs resembles that in OH and CRHs.

Figure 10: Rayon Number Hospital Expenditures, by Item and Source (%), Sogd Oblast

	2008			2009			2010			
	State Budget	BBP	**Total Expenditures**	State Budget	BBP	**Total Expenditures**	State Budget	According to Decree №600	BBP	**Total Expenditures**
TOTAL EXPENDITURE	**92,6%**	**7,4%**	**100%**	**88,9%**	**11,1%**	**100%**	**87,8%**	**3,1%**	**9,1%**	**100%**
1.Wages	98,0%	2,0%	**100%**	95,5%	4,5%	**100%**	95,0%	1,1%	3,9%	**100%**
2. Overall goods and services	60,9%	39,1%	**100%**	55,8%	44,2%	**100%**	58,0%	11,2%	30,9%	**100%**
2.1. Purchase of goods including:	46,8%	53,2%	**100%**	38,2%	61,8%	**100%**	40,7%	11,5%	47,8%	**100%**
2.1.6. Food items	100,0%		**100%**	100,0%		**100%**	100,0%			**100%**
2.1.9. Medications	12,8%	87,2%	**100%**	14,3%	85,7%	**100%**	38,7%	6,9%	54,5%	**100%**
2.2. Payment for utilities, including:	100,0%		**100%**	100,0%		**100%**	91,9%	8,1%		**100%**
2.2.1. Electricity	100,0%		**100%**	100,0%		**100%**	90,1%	9,9%		**100%**
2.2.2. Gas										
2.2.3. Heating				100,0%		**100%**	100,0%			**100%**
2.2.4. Garbage collection	100,0%		**100%**	100,0%		**100%**	100,0%			**100%**
2.2.5. Water										
2.3. Maintenance and repairs of buildings, facilities, transportation, equipment, etc.								100,0%		**100%**
2.4. Payment for communication services	100,0%		**100%**	100,0%		**100%**				

5. Purchase of basic capital										
5.1. Centralized capital investments										
5.2. Purchase of equipment										

5.2. Indicators of Hospital Efficiency

In addition to analyzing the financial records of the hospitals in this survey, the researchers also examined several aspects of hospital efficiency: hospital performance; infrastructure efficiency and human resources.

5.2.1. Performance

Hospital performance was evaluated using three indicators:

- Bed turnover: the number of patients that utilize an individual bed during a year;
- Bed occupancy: a hospital bed is filled during the year; the average length of hospital stay, divided by the number of total hospital beds, multiplied by the number of days in a year; and
- Workload: the average number of patients per doctor.

Bed Occupancy

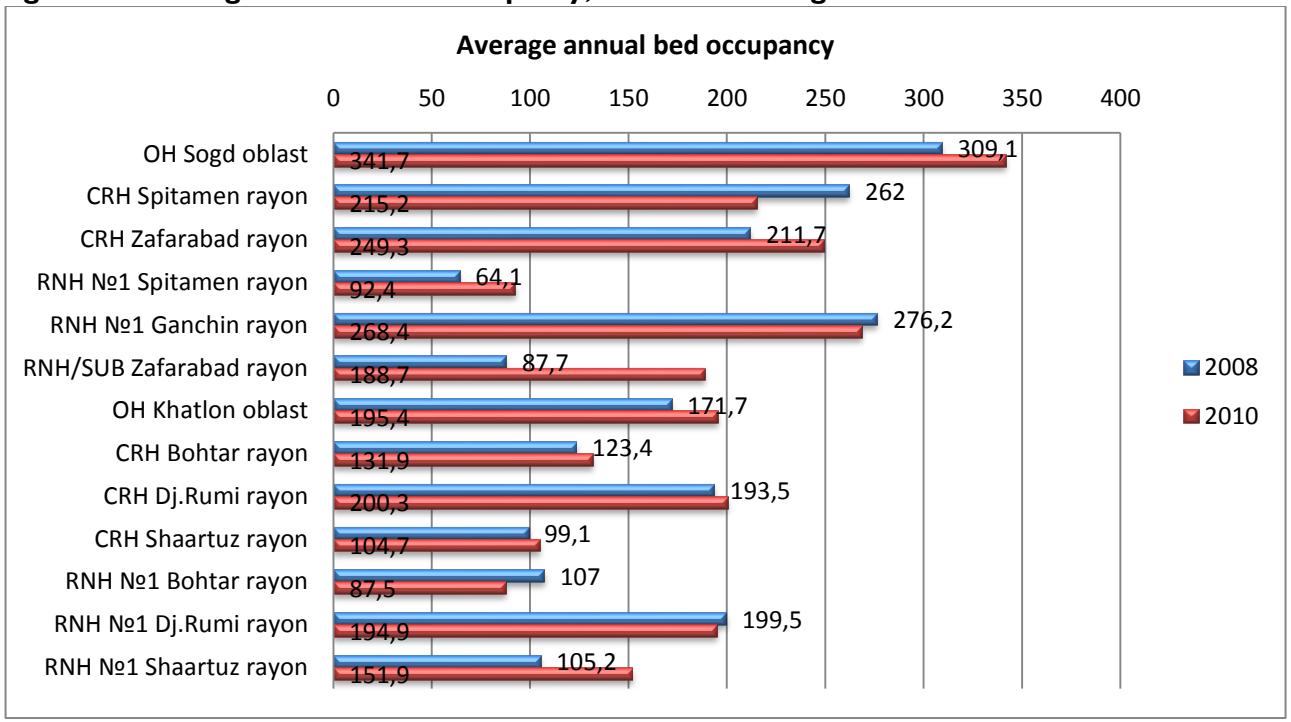
Overall, beds were not optimally utilized in the hospitals studied. OHs achieved the highest bed utilization. In 2010 in the Sogd OH in Khudjand the average bed was utilized 341.7 days; in the Khatlon OH, the average bed was utilized 195.4 days (see Figure 4).

In CRHs, the indicator varies from 249.5 days of utilization in the Zafarabod CRH to 104.7 days in the Saahtuzskoi CRH. The Gonchi Rayon CRH had an average bed occupancy rate of 534.3 days in 2008 and 505.4 in 2010, indicating that the data provided by this CRH was not valid. As a result, data from the Gonchi Rayon CRH was omitted from analysis.

Bed occupancy rates at RNHs studied varied from 268.4 days Gonchi Rayon RNH (Sogd Oblast) to 87.46 at the Bokhtar RNH (Khatlon Oblast). RNH #1 in the Spitamen Rayon had an extremely low average bed occupancy rate.

Overall, the average bed is unoccupied for more than half of the year in the majority of hospitals studied.

Figure 11. Average Annual Bed Occupancy, Khatlon and Sogd Oblasts



Doctor and Nurse Caseload

The workload for doctors and nurses varies across regions. For example, in 2010 in the Sogd OH there were, on average, 94.8 hospitalized cases per doctor (Figure 12), whereas in the Khatlon OH there were, on average, 1,500 cases per doctor.

In CRHs and RNHs, the workload for doctors is also varied. In 2010, the Zafarabod Rayon CRH had 242 hospitalized cases per doctor, while at the A.Rumi Rayon CRH each doctor handled, on average 205.21 cases, and at the Bokhtar Rayon CRH each doctor handled on average 110.7 cases. Hence, doctors in the Bokhtar Rayon handled, on average, 2.2 times fewer cases than doctors in the Zafarabod Rayon. Similarly, a doctor at the Mekhnatabad RNH in the Zafarabod Rayon served an average of 337 cases in 2010, while at the Shakhritus Rayon RNH a doctor served an average of 264.4 cases, and a doctor at the Bokhtar Rayon RNH served 94.25 cases, Here again, there is a huge discrepancy, with doctors in the Bokhtar Rayon serving 3.5 as many patients as doctors at RNHs.

Similarly, the workload for nurses in the different types of hospitals varies across regions. For example, nurses at the Sogd OH cover an average of 66.4 cases each. In comparison, nurses at the Khatlon OH covered 47.8 each, on average (Figure 13). Similarly, a nurse at the A. Rumi Rayon CRH served 84.19 cases in 2010, and a nurse at the Bokhtar Rayon CRH served 12.5 cases. Among RNHs, the highest workload was in RNH #1 in the A.Rumi Rayon with 72.17 cases per nurse; the lowest workload was seen in the Bokhtar Rayon RNH, with 27.93 cases per nurse.

Figure 12. Number of Hospitalizations per Doctor, Khatlon and Sogd Oblasts

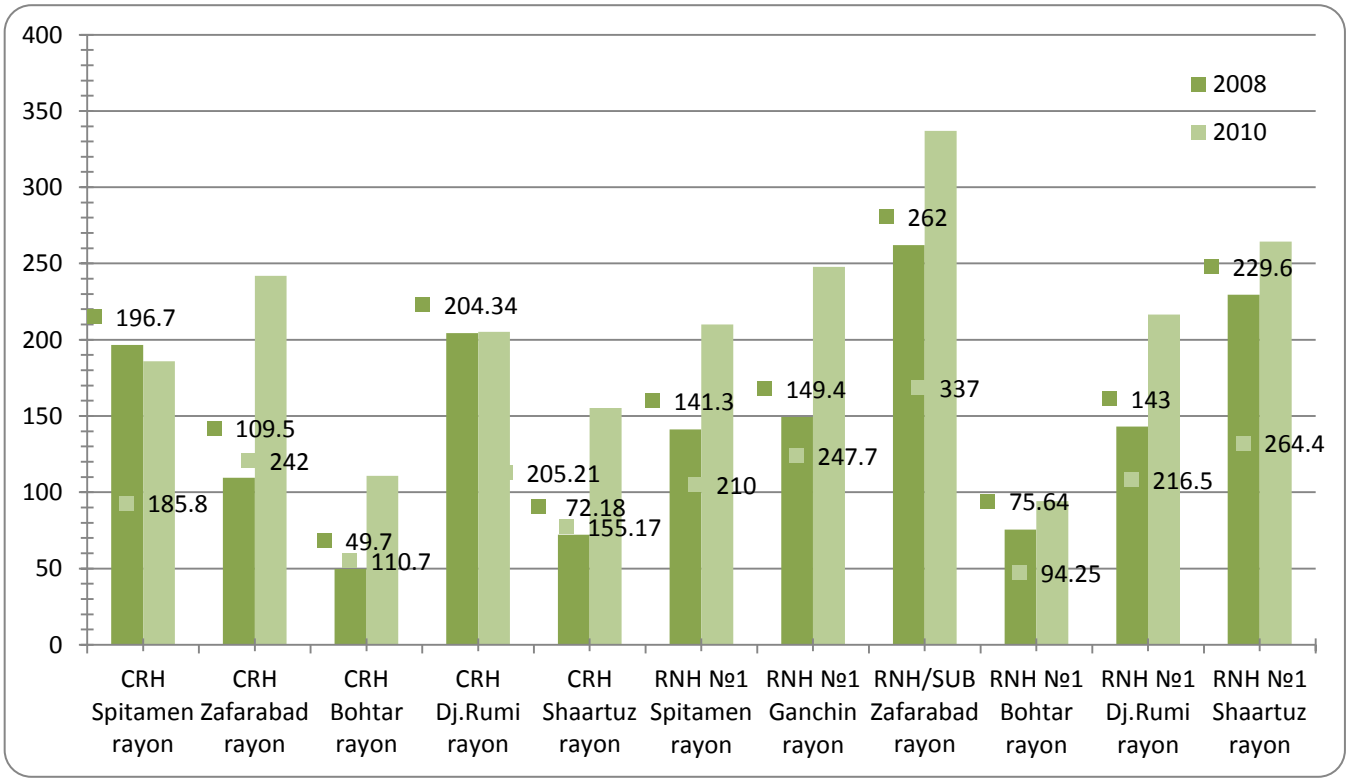
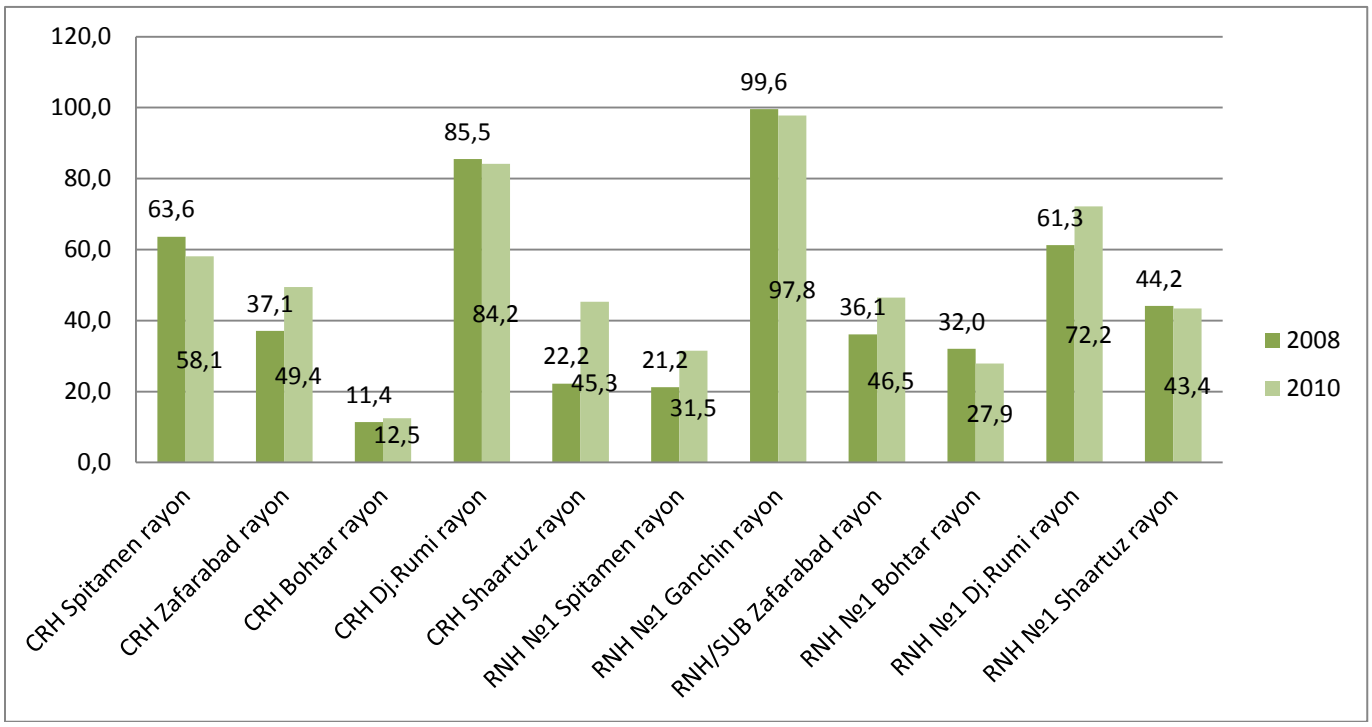


Figure 13. Number of Hospitalizations per Nurse, Khatlon and Sogd Oblasts



5.2.2. Human Resources

Seven indicators of human resource allocation efficiency were examined: allocated positions; physical entities; sufficiency of staff; availability of human resources; average wages of doctors; average wages of mid-level medical personnel; and average wages of lower-level medical personnel. For the sake of brevity, the following analysis does not examine each indicator in depth, but rather combines them.

Tajikistan is currently experiencing a shortage of qualified health care workers. According to data from the "National Healthcare Strategy of the Republic of Tajikistan for the Period of 2010-2020," which was adopted by Governmental Decree #368 on August 2, 2010, the country is currently experiencing a shortage of 4,000 doctors and 7,500 nurses. The total number of doctors and health care workers in the country is currently 14,459 and 32,631, respectively.

Furthermore, as indicated in the previous section, there is a significant imbalance in the distribution of providers geographically. The capital of Dushanbe has the best ratio of doctors to patients, with 729 doctors per 100,000 persons. This ratio is four times the national average of 194 doctors per 100,000 persons.[15] Surveys taken during the course of this research reflected this unequal distribution of doctors. Every RNH director surveyed mentioned this problem, as did a few CRH directors. However, none of the head doctors at OHs mentioned lack of medical staff as a problem. None of the OHs, CRHs or RNHs included in the survey indicated that they had a shortage of mid-level health care workers.

The survey participants believed the reason for this imbalance to be internal and external migration patterns of health care workers, who strive to move either to the capital city or abroad in search of higher income. Many RNHs have suffered from these migration patterns. For example, in 2008 RNH

[15] The Strategic Plan for the Rationalization of Health Facilities in the Republic of Tajikistan for the period of 2011-2020

#1 in the Gonchi Rayon had 24 doctors on staff; by 2010 the hospital had only 15 doctors. Similarly, the Zafarabod CRH had 58 doctors on staff in 2008, but only 30 doctors by 2010.

The low wages of health care workers was also mentioned by all of the survey participants as contributing to the unequal distribution of doctors throughout the country. For instance, the average wage of RNH doctors in 2009 was 123.9 somoni per month; a doctor in a CRH earned an average of 120.4 somoni per month in that same year. In comparison, the average overall salary in Tajikistan was 284.4 somoni in 2009.

Additional factors complicating the provision of a sufficient number of health care workers to the entire country include:

- a shortage of qualified medical staff[16];
- a lack of material incentives for graduates of medical educational institutions to work in the oblasts;
- discrepancies between the number of medical personnel and facility needs; and
- a lack of coordination and insufficient planning for the type of specialists being trained, and the needs of health facilities.

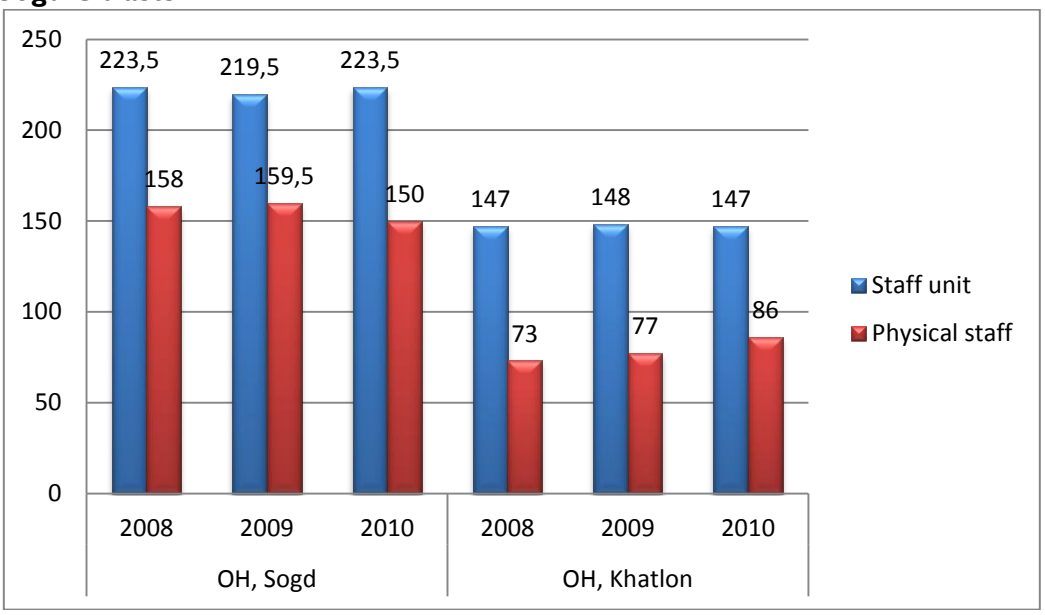
A final issue relates to continuing education for medical professionals. Since 1992, the national government has not had sufficient funds to allocate towards professional training sessions for doctors at in-patient facilities. Since that time doctors have been forced to pay for their own training sessions, which creates an additional financial burden for physicians.

The above-mentioned phenomena are likely the reason for vast discrepancies between actual workers, and the number of positions allocated to each hospital by MOH. For example, the staff list of the Khatlon Oblast OH gives the number of staff members as 147; however, only 86 doctors are actually working there. A similar situation is found in the Sogd Oblast OH (see Figure 7).

Overall, rural areas are experiencing an acute lack of quality health care employees, due to a lack of material incentives to work in rural or remote locations. The lack of such incentives promotes the process of migration of personnel from the oblasts and thereby, intensified human resource shortages. Replacement of lost personnel becomes even more difficult due to insufficient preparation of students at the country's medical education institutions.

[16] The Program for Development of Human Resources in the Healthcare System of the Republic of Tajikistan

Figure 14. Number of MOH Allocated Staff Positions to Actual Employees, Khatlon and Sogd Oblasts



5.2.3. Infrastructure

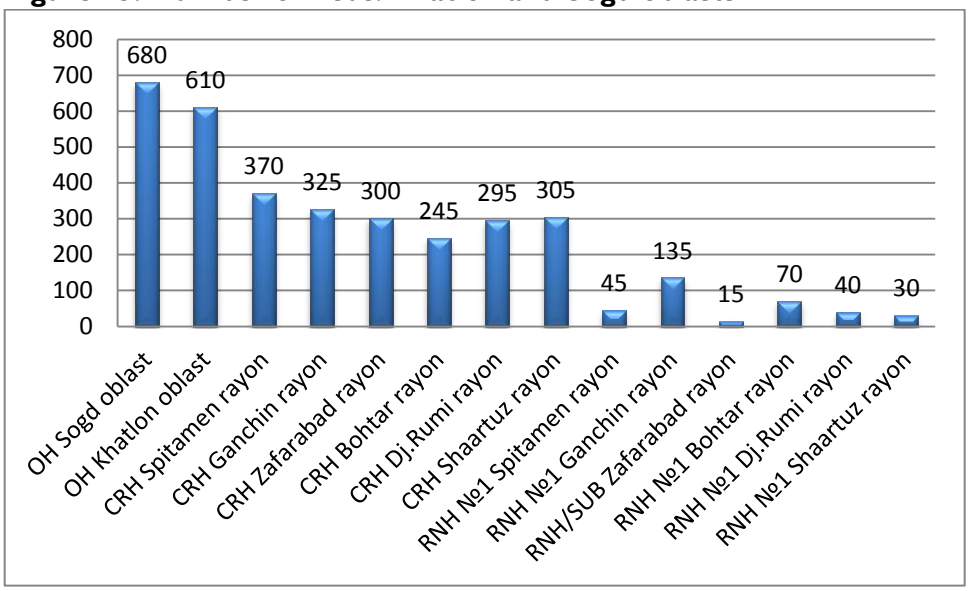
The condition of the hospital facilities surveyed as part of this research was found to be poor. All hospitals surveyed are 30 years old or older, and need major repairs.

All of the facility directors interviewed mentioned that the provision of equipment at their facilities was also poor. RNH directors indicated that their facilities possess almost no medical equipment. In order to issue a diagnosis RNHs must send patients to CRHs. RNHs function primarily to provide simple primary care procedures such as intra-venous infusions and intra-muscular injections.

CRHs and OHs have been provided with old, but functioning diagnostic equipment. OHs may at times purchase new equipment using state budgeted funds. International donors also provide equipment at times.

The number of beds at all hospital levels in both oblasts has been reduced in recent years. However, there are still many beds at most hospitals. For instance, the Sogd CRH has 680 beds, and the Gonchi RNH has 135 occupied beds (Figure 15).

Figure 15. Number of Beds. Khatlon and Sogd oblasts



The provision of utilities is also poor in all of the hospitals surveyed. The heads of OH and CRH reported that their facilities lack centralized water systems, centralized heating, and that they experience frequent power supply failures. The directors attempt to solve these problems through the purchase of generators, solar batteries, or coal, as well as through the drilling of wells in order to install water pumps. OH and CRHs do have some type of communication infrastructure available, such as local telephones and even Internet.

However, the situation in RNHs is even more difficult. These hospitals have a poor provision of water and in some cases lack water altogether. RNH heads reported problems with electricity supply as well. Heating is not available at all RNHs and usage of electric heating is not possible due to the lack of electrical supply. RNHs also frequently lack any means of communication such that medical personnel must use their personal mobile telephones for business calls.

5.3. Health Facility Directors' Opinions about the New Financing Mechanisms

Interviews with the heads of the health care institutions included in this study revealed that many are unaware of the new financing mechanisms. Many directors who had heard of the new mechanisms nonetheless exhibited a limited understanding of them. Below is a summary of the opinions expressed about the new methods of health care system funding by health facility directors during interviews conducted in 2011.

Khatlon Oblast

The directors of both OH and CRHs in the Khatlon Oblast highlighted that they believe the MOH health reforms, particularly, the introduction of BBP, case-based payment, and medical insurance, will further the development of hospital care. The directors also felt that it would be better for funds to be pooled at the oblast health department level.

RNH directors in the Khatlon Oblast indicated that they believe in-patient facilities could be improved through better working conditions for health care personnel; the construction of new

facilities; and through increased state government funding for health facilities. RNH directors also stated that hospital financing through the oblast health department would be preferable to financial control at the rayon level.

The interviewees stated that case-based payment would positively influence hospital performance. However, when detailed questions were asked about case-based payment systems, all survey participants expressed confusion. As a result, participants stated that trainings were needed on the new financing mechanisms as well as on hospital management.

Several directors who participated in the survey stated that the development of private self-funded health care would improve the efficiency of in-patient facilities. However, these respondents did not state how such a system would specifically impact the operation of in-patient facilities.

Respondents also provided the following suggestions, which they believe should be implemented simultaneously with the new funding methods: (1) improve hospital infrastructure; (2) introduce clinical protocols; (3) regulate the official translation of medical terminology into the Tajik language; and (4) establish a quality control and pricing system for medications and their procurement.

Sogd Oblast

In the Sogd Oblast, health facility directors noted that in-patient facilities will improve efficiency through the introduction of BBP; broadening the list of categories of those qualified for benefitsunder the condition that the state government ensure funding of BBP; and the creation of self-financing laboratories.

In the Sogd Oblast, health facility directors stated that funds received from patient payments should be allocated by hospital administration. However, in countries such as Kyrgyzstan and Armenia, where a co-payment system has been introduced, the allocation of funds has been regulated by legislation signed by central level authorities.[17] Several respondents also highlighted the fact that the introduction of a case-based payment system will lead to a reduction in the number of beds in a hospital. They believe that funds saved from that reduction would remain in the health facility.

Most of the hospital directors at the rayon level reacted positively to the idea of separating the CRH and RNH budgets, and thereby giving RNHs more financial autonomy. However, a few RNH directors noted that it would be better not to divide budgets but to continue receiving funds from CRH. Several directors also stated that it would be advantageous if funds saved because of staff vacancies could be transferred to other expenditures, such as hospital maintenance, logistics, and building renovations.

With the exception of the Spitamen Rayon, the health facilities included in this study were not pilot facilities for BBP. Therefore, their opinions on the effectiveness of BBP is based on feedback from directors of other health care facilities in the pilot areas and/or from seminars conducted by MOH on BBP for the pilot and non-pilot rayons in the Sogd Oblast.

The success of the Tajik MOH's health care financing reforms will depend on the Ministry's ability to raise awareness of the reforms among health facility directors and accountants, and to provide

[17] Ibraimova A, Akkazieva B, Ibraimov A, Manzhieva E, Rechel B. Kyrgyzstan: Health system review. Health Systems in Transition, 2011; 13(3): 1–152. Online: http://www.euro.who.int/__data/assets/pdf_file/0017/142613/e95045.pdf

trainings about the reforms at the rayon and oblast levels. Regular monitoring of how this training is being utilized should be carried out by local MOH experts, with the support of donor organizations.

6. Conclusions

The general picture of financing mechanisms and hospital performance in the Khatlon and Sogd Oblasts is identical, with the exception of the Spitamen Rayon in the Sogd Oblast. However, conditions vary, depending on the level of the hospital.

1. **Sources of funding**

- The state government budget is the main source of funding in both the Khatlon and Sogd Oblasts, with between 60% to 90% of total funding at OHs and CRHs coming from the state government budget. The state government budget is the single source of funding for RNHs in the Khatlon Oblast.

- Due to insufficiency of state government funding in some rayons in the Khatlon and Sogd Oblasts, mechanisms have been implemented that require patients to pay for health care services. In the Khatlon Oblast, for example, diagnostics services are paid for by patients, according to the framework of Governmental Decree #600. In the Sogd Oblast, both Decree #600 and BBP have been introduced and implemented. BBP provides hospitals with additional source of funding in the form of co-payments from patients. However, the share of funds received in the form of paid services and co-payments from patients is not more that 15% of total funding.

2. **Line item expenditures**

- Funds from the state government budget are utilized primarily to pay wages to hospital staff. At OHs and CRHs up to 80% of the funds received from the state government budget are spent on wages, while over 90% of such funds are utilized on wages at RNHs.

- The amount of funding for food for patients is extremely low, as a result of which patients in OHs and CRHs are provided with hot meals only once a day. In some RNHs patients are not provided meals at all due to lack of funds.

- The amount of funding allocated for medications from the state government's budget is also extremely low and does not cover hospital needs. In the majority of cases these funds suffice only to provide urgent medical assistance and provide drugs to patients in need of emergency care. In both the Khatlon and Sogd Oblasts, humanitarian aid in the form of medication has been provided to hospitals, which has improved drug provision. However, such assistance is not sustainable and hospitals cannot rely on it. Co-payments are a more stable source of drug provision, as seen in hospitals in the Spitamen Rayon, which were able to provide patients with needed drugs thanks to their co-payment system.

- The amount allocated for utilities is not significant at any of the types of hospitals surveyed. The major expenditures for utilities are directed at payments for electricity and water. However, current financing does not cover hospital utility needs completely, which leads hospitals into debt.

3. **Hospital Performance and Human Resources**

- The amount a bed is utilized varies in the different types of hospitals
  - In OHs and CRHs a bed is utilized on average, from 105 to 342 days per year.
  - In RNHs a bed is utilized on average 64-199 days per year. In other words, in some hospitals beds remain unoccupied up to 277 days a year.

- The workload for doctors and nurses varies across both oblasts. Overall, in the Republic of Tajikistan, there is shortage of qualified health care workers in rural areas, which is caused by lack of material incentives for those who work in rural or remote locations. Lack of such incentives promotes the migration of health care workers away from rural hospitals and intensified staffing problems. Replacement of lost personnel becomes more difficult as the number of providers being trained fails to keep up and align with hospital needs. MOH does not have effective system-wide activities for planning and conducting continuing education courses and professional retraining of health care providers.

4. **Infrastructure**

- In all facilities surveyed, equipment provision is low.
  - OHs and CRHs possess some old and some new equipment, most of which functions.
  - RNHs do not possess any medical equipment and as a result must send patients to CRHs or to primary health care facilities in order to issue a diagnosis.

- The number of beds at all hospital levels in both oblasts has been reduced during the past several years, but nevertheless, it is still quite high. For instance, the Sogd RCH currently maintains 680 beds, and the Gonchi RNH maintains 135 occupied beds.

- The provision of utilities is poor in all of the hospitals surveyed, but the situation in RNHs is the most challenging:
  - Even when supplied with centralized water systems, OHs and CRHs suffer from water supply failure.
  - RNHs use mainly irrigation or ground water.
  - All types of hospitals lack centralized heating.
  - There are power supply failures at all types of hospitals. To solve this issue, some hospitals use either generators or solar batteries.

- The lack of communication infrastructure in RNHs means that employees are obliged to use their personal mobile phones for business calls.

- All hospitals surveyed are 30 years old or older, and need major repairs.

5. **Opinions of Health Care Providers**

- The results of interviews with the directors of health care institutions revealed a minimal level of awareness and understanding of the new of health care system funding mechanisms. Capacity building training sessions and awareness raising activities about the new financing mechanisms should be provided to health facility heads and accountants. Educational

seminars and/or mobile trainings about the new mechanisms should also be provided at the rayon and oblast levels.

- Facility directors expressed conflicting opinions on the implementation of case-based payment principles and consolidation of funds at the oblast health department level. However, the majority of feedback about these innovations was positive.

7. Recommendations for Policy Implementation

Based upon the information gathered through this research, the researchers developed a set of recommendations. For the most part, these recommendations are already reflected in the "National Strategy for the Protection of the Health of the Population for 2010-2020" and the "Strategic Plan for the Rationalization of Health Facilities in the Republic of Tajikistan for the period of 2011-2020." As such, this report largely supports the correctness of the Tajik government's plans for health care financing reform.

I. Case-based payment principles should be implemented to enable hospitals to more efficiently provide health care.

II. Training on the new payment mechanisms should be provided to facility directors and financial specialists, as the success of their implementation depends on stakeholder awareness of the new methods. Further monitoring of how this knowledge is utilized should also be implemented.

III. To achieve financial stability, hospitals throughout Tajikistan should implement BBP programs, and the government should ensure complete and stable funding for these programs. A more detailed analysis of the positive and negative impacts of the existing BBP should also be conducted with the purpose of its further improvement.

IV. To increase the efficiency of hospital performance and health care delivery, clinical protocols should be developed and implemented.

V. Analysis of the performance of RNHs indicated that their efficacy was so low as to warrant their closure. In order to maintain access to health care for the rural population, part of the funds released due to the closure of RNHs should be reallocated for primary health care strengthening. Specifically, facilities with daytime hospitals could be established at the primary health care level.

VI. A range of activities should be developed to provide sufficient health care personnel throughout the country, as well as continuing medical education for health care providers.

VII. Hospital restructuring should be implemented simultaneously with the new funding mechanisms. This restructuring should focus particularly on the reduction of the number of facilities and the number of beds.